

**I. Amendment to the Claims**

Please amend the application as follows:

Please cancel claim 97 without prejudice.

- Claim 1 (Previously Amended) A method of reducing photoaging in a mammal, comprising administering to the epidermis of the mammal a composition comprising an effective amount of at least one oligonucleotide, wherein said oligonucleotide is approximately 2-200 nucleotides in length, and wherein the oligonucleotide comprises a phosphodiester backbone.
- Claim 2. (Twice Amended) The method of Claim 1, wherein said oligonucleotide ~~comprises a nucleotide sequence consisting~~ consists of a nucleotide sequence or a portion of a sequence selected from the group consisting of SEQ ID NOs: 1, 2, 3, 4, 5, 6, 8, ~~9, 10, and 11 and 12~~.
- Claim 3. (Original) The method of Claim 1, wherein said oligonucleotide is single-stranded.
- Claim 4. (Previously Amended) The method of Claim 1, wherein the oligonucleotide comprises a 5' phosphate.
- Claim 5. (Original) The method of Claim 1, wherein said oligonucleotide is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 6. (Previously Amended) The method of Claim 1, wherein the oligonucleotide comprises a physiologically acceptable carrier.

- Claim 7. (Twice Amended) A method of increasing melanin production in epidermal melanocytes, said method comprising topically administering to said ~~cells~~ epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:5, SEQ ID NO:3, or SEQ ID NO:11.
- Claim 8. (Twice Amended) The method of Claim 7, wherein said oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 5<sup>-</sup> or a portion thereof.
- Claim 9. (Original) The method of Claim 7, wherein the oligonucleotide is single-stranded.
- Claim 10. (Original) The method of Claim 7, wherein the oligonucleotide comprises a 5' phosphate.
- Claim 11. (Original) The method of Claim 7, wherein the oligonucleotide is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 12. Cancelled.
- Claim 13. (Previously Amended) The method of Claim 7, wherein the composition comprises a physiologically acceptable carrier.
- Claim 14. (Twice Amended) A method of increasing melanin production in epidermal melanocytes, comprising ~~contacting topically administering the cells with~~ epidermal melanocytes an effective amount of at least one oligonucleotide having a phosphodiester backbone, wherein the oligonucleotide consists of at least one sequence ~~or portion thereof~~ selected from the group consisting of: pTpT,

SEQ ID NO:1, ~~SEQ ID NO:2~~, SEQ ID NO:3, ~~SEQ ID NO:4~~, SEQ ID NO:5 ;  
and SEQ ID NO:11 ~~and SEQ ID NO:12~~.

- Claim 15. (Original) The method of Claim 14, wherein the oligonucleotide is single-stranded.
- Claim 16. (Original) The method of Claim 14, wherein the oligonucleotide comprises a 5' phosphate.
- Claim 17. (Original) The method of Claim 14, wherein the oligonucleotide is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 18. Cancelled.
- Claim 19. (Previously Amended) The method of Claim 14, wherein the composition comprises a physiologically acceptable carrier.
- Claim 20. (Previously Amended) A method of increasing DNA repair in epithelial cells, comprising applying directly to said cells an effective amount of a composition comprising pTpT.
- Claims 21-22. Cancelled.
- Claim 23. (Previously Amended) The method of Claim 20, wherein the pTpT is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 24. Cancelled.

Claim 25. (Previously Amended) The method of Claim 20, wherein the composition comprises a physiologically acceptable carrier.

Claim 26. (Twice Amended) A method of inhibiting proliferation of epithelial cells, comprising topically administering to said cells an effective amount of a composition comprising pTpT.

Claims 27-28. Cancelled.

Claim 29. (Previously Amended) The method of Claim 26, wherein the pTpT is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.

Claims 30-31. Cancelled.

Claim 32. (Previously Amended) The method of Claim 26, wherein the composition comprises a physiologically acceptable carrier.

Claims 33-50. Cancelled.

Claim 51. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO: 5 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 52. (Original) The composition of Claim 51, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claims 53-56. Cancelled.

Claim 57. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO:3 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 58. (Original) The composition of Claim 57, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claims 59-62. Cancelled.

Claim 63. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO: 9 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 64. (Original) The composition of Claim 63, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claim 65-68. Cancelled.

Claim 69. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID

NO: 3 or SEQ ID NO: 4, and wherein at least one of said oligonucleotides comprises a 5' phosphate, and wherein said composition is suitable for medicinal or cosmetic use.

Claim 70. Cancelled.

Claim 71. (Twice Amended) A method of increasing p53 activity in epidermal cells, said method comprising topically administering an effective amount of  $d(pT)_2^-$  or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO:1 or SEQ ID NO:6 to said cells.

Claim 72. (Previously Added) The method of Claim 71 wherein activation of p53 results in nucleotide excision repair in the cell.

Claims 73-74. Cancelled.

Claim 75. (Twice Amended) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising directly administering to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT.

Claim 76. (Previously Amended) The method of Claim 75, wherein pTpT is ultraviolet-irradiated.

Claim 77. (Previously Added) The method of Claim 75, wherein the DNA fragments are administered in a delivery vehicle.

- Claim 78. (Previously Added) The method of Claim 77, wherein the delivery vehicle comprises liposomes.
- Claim 79. (Previously Added) The method of Claim 77, wherein the delivery vehicle comprises propylene glycol.
- Claim 80. Cancelled.
- Claim 81. (Previously Added) The method of Claim 75, wherein the DNA fragments are administered by aerosol.
- Claim 82. (Previously Added) The method of Claim 75, wherein the mammal is a human.
- Claim 83. (Previously Amended) The method of Claim 75, wherein the epithelial cells are carcinoma cells.
- Claim 84. Cancelled.
- Claim 85. (Twice Amended) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin cells an effective amount of **a composition selected from the group consisting of** deoxynucleotides, dinucleotides, ~~or~~ dinucleotide dimers and **any of the foregoing** combinations thereof.
- Claim 86. (Previously Amended) A method of inhibiting or reducing DNA damage in epidermal cells of a mammal, wherein said DNA damage is caused by UV irradiation, said method comprising topically administering to the cells in the mammal an effective amount of a composition comprising DNA fragments that

are approximately 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and combinations thereof.

Claim 87. Cancelled.

Claim 88. (Twice Amended) A method of **treating inhibiting growth of** malignant cells **of in** a mammal, comprising **directly** administering to said cells an effective amount of DNA fragments that comprise a phosphodiester backbone and are about 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and ~~combinations thereof~~ **a combination of any of the foregoing.**

Claim 89. (Previously Added) The method of Claim 85, wherein said skin cells are selected from the group consisting of: epithelial cells, melanocytes, keratinocytes and fibroblasts.

Claims 90-92. Cancelled.

Claim 93. (Amended) A method of increasing melanin production in epidermal cells, said method comprising topically administering to said cells an effective amount of a composition comprising at least one single-stranded oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide ~~has a nucleotide sequence homologous to the telomere repeat sequence~~ **consists of SEQ ID NO:11, SEQ ID NO:1, pTpT, SEQ ID NO:5 or a functional fragment of SEQ ID NO:5.**



- Claim 94. (Previously Added) A method of increasing DNA repair in skin of a mammal, comprising topically administering to the skin an effective amount of a composition comprising pTpT or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO:1.
- Claim 95. (Amended) A method of ~~treating~~ inhibiting growth of malignant skin cells of a mammal said method, comprising topically administering to said cells an effective amount of pTpT.
- Claim 96. (Previously Added) The method of Claim 95, wherein the cells are skin cells.
- Claim 97. Cancelled.
- Claim 98. (Previously Added) The method of Claim 86, wherein the composition comprises pTpT or a single-stranded DNA fragment having a nucleotide sequence consisting of SEQ ID NO:1 with a 5' phosphate.
- Claim 99. (Previously Added) A method of inhibiting the growth of cells in a mammal, comprising directly administering to the cells of the mammal an effective amount of pTpT.
- Claim 100. (Previously Added) A method of inhibiting proliferation of epithelial cells, comprising directly administering to said cells an effective amount of a composition comprising pTpT.

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- Claim 101. (Previously Added) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin an effective amount of a composition comprising at least one oligonucleotide having a DNA sequence consisting of pTpT or SEQ ID NO:1.
- Claim 102. (Previously Added) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin of the mammal an effective amount of a composition comprising pTpT.
- Claim 103. (Previously Added) The method of Claim 102, wherein said skin cells are selected from the group consisting of: melanocytes, keratinocytes and fibroblasts.
- Claim 104. (Previously Added) A method of inhibiting growth of skin cells in a mammal, comprising administering to skin of the mammal an oligonucleotide having a nucleotide sequence consisting of pTpT, SEQ ID NO:1 or SEQ ID NO:6.
- Claim 105. (Previously Added) The method of Claim 104 wherein the skin cells are keratinocytes.
- Claim 106. (Previously Added) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO:11 and wherein said composition is suitable for medicinal or cosmetic use.
- Claim 107. (Previously Added) The composition of Claim 106, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claim 108. (Previously Added) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO:12 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 109. (Previously Added) The composition of Claim 108, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Please add the following new claims:

- Claim 110. (New) A method of increasing melanin production in epidermal melanocytes, said method comprising topically administering to said epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:1, SEQ ID NO: 2; SEQ ID NO:3 or SEQ ID NO:4.
- Claim 111. (New) A method of inhibiting growth of malignant skins cells in a mammal, said method comprising topically administering to the skin cells an effective amount of a composition comprising at least one oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide consists of a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO: 6 and pTpT.
- Claim 112. (New) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising administering by aerosol to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:1, SEQ ID NO:6 or pTpT.
- Claim 113. (New) A method of treating inhibiting growth of epithelial carcinoma cells in a mammal, comprising administering to the epithelial carcinoma cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:1, SEQ ID NO:6 or pTpT.